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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09 912,327	07/26/2001	Masahito Ohe	501.36702CX2	8370

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EXAMINER

CHUNG, DAVID Y

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/912,327

Applicant(s)

OHE ET AL.

Examiner

David Y. Chung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/185,647.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 4-24 rejected under 35 U.S.C. 103(a) as being unpatentable over Gibbons et al. (U.S. 5,817,743) in further view of Gibbons et al. (U.S. 6,061,138), Tanaka (U.S. 5,893,990), and Kusumoto et al. (U.S. 6,027,960).

As to claims 1, 8, 13 and 18, Gibbons et al. (U.S. 5,817,743) discloses a process for inducing pre-tilt in liquid crystal displays. The process involves exposing alignment layers to polarized UV light to induce alignment of liquid crystals. See column 2, lines 34-65. Gibbons et al. (U.S. 5,817,743) teaches that heating may further impact the efficiency of the alignment process and the exposure energy required. Additional heating may increase the mobility of the molecules during exposure and improve the alignment quality of the alignment layer. See column 16, line 66 – column 17, line 8.

Gibbons et al. (U.S. 5,817,743) does not disclose moving the substrate on a stage during exposure. Gibbons et al. (U.S. 6,061,138) teaches that a means of transporting the substrate relative to the optical radiation (such as a linear translation

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stage) allows the exposure area to be smaller than the substrate dimension. A complete scan will uniformly exposure the substrate. A further advantage with this approach is that it is compatible with continuous motion assembly lines. See column 5, lines 47-63. It would have been obvious to one of ordinary skill in the art at the time of invention to use a movable stage because of the aforementioned benefits.

Gibbons et al. (U.S. 6,061,138) does not disclose heating the substrate with the movable stage. However, this was conventional at the time of invention as shown by Tanaka and Kusumoto et al. Tanaka discloses a movable stage 37 that includes heating means for heating the substrates 10, as shown in figures 1 and 2. See column 6, lines 52-61. Kusumoto et al. discloses keeping substrate 105 at a constant temperature using a heater disposed in table 106, as shown in figure 1. See column 7, lines 50-55. It would have been obvious to one of ordinary skill in the art at the time of invention to heat the substrate with the movable stage because it was simple and cost-effective.

As to claims 4, 9 and 14, Gibbons et al. (U.S. 5,817,743) discloses that a preferred source of light is a laser, e.g., an argon laser. See column 16, lines 1-10.

As to claims 5, 10 and 15, Gibbons et al. (U.S. 5,817,743) discloses that another source of polarized light is light from a mercury arc or xenon lamp. See column 16, lines 15-20.

As to claims 6, 11, 16 and 19, Gibbons et al. (U.S. 5,817,743) does not disclose using UV irradiation during the manufacturing process for parallel field devices. However, it was well known and obvious to use UV irradiation to orient and polymerize the alignment layer in a parallel field device because such a method leads to better pre-alignment of the liquid crystal layer and thus better viewing properties over a wide range of viewing angles. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the method of Gibbons et al. (U.S. 5,817,743) for parallel field devices for the aforementioned reason.

As to claims 7, 12 and 17, Gibbons et al. (U.S. 5,817,743) does not disclose making the orientation axes of the upper and lower alignment layers parallel to one another. However, it was well known and obvious to have the two axes parallel to one another in order to create a uniform alignment condition across the entire liquid crystal layer. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to make the orientation axes of the upper and lower alignment layers parallel to one another for the aforementioned reason.

As to claim 20, Gibbons et al. (U.S. 5,817,743) does not disclose a specific size for the display. However, the size of the liquid crystal display is a result effective variable that one of ordinary skill in the art would have known how to determine. It was well known and obvious that making the liquid crystal display too small would have rendered it ineffective for viewing images. Therefore, it would have been obvious to one

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of ordinary skill in the art at the time of invention to make the size of the liquid crystal display device at least 10 inches, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

As to claims 21-24, Gibbons et al. (U.S. 5,817,743) does not disclose the temperature to which the substrate was heated and the duration for which this temperature was maintained. However, these are result effective variables that one of ordinary skill in the art would have known how to determine. It would have been obvious to one of ordinary skill in the art at the time of invention to heat the substrate to a temperature of 80 degrees Celsius, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Response to Arguments

Applicant's arguments with respect to claims 1 and 4-24 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Chung whose telephone number is (703) 306-0155. The examiner can normally be reached on Monday-Friday from 8:30 am to 5:00 pm.

David Chung
GAU 2871
06/10/03

TOANTON
PRIMARY EXAMINER